

ELECTRONIC SHIPMENT PLANNERTechnical Field and Background of Invention

This patent application claims priority based on United States Provisional Patent Application No. 60/174,887 filed on January 7, 2000. This invention relates to an interactive electronic shipment planner. The invention is a computer based application that enables efficient management and tracking of shipments using a convenient and easy to read calendar interface. The invention can be accessed globally via the Internet at anytime using standard computer hardware, software, and communications equipment. The invention is further applicable for personal events scheduling. Moreover, the calendar display format of the shipment planner can be readily customized to suit the needs of the user. Unlike traditional planners, the present invention effects electronic filtering of information contained in a data repository to display only a select portion of the information to the user.

Summary of the Invention

Therefore, it is an object of the invention to provide an electronic shipment planner which provides ready and convenient management and tracking of shipments.

It is another object of the invention to provide an electronic shipment planner which provides shipment data in an easy to read, interactive calendar format.

It is another object of the invention to provide an electronic shipment planner which can be accessed globally via the Internet.

It is another object of the invention to provide an electronic shipment planner which utilizes standard compute hardware, software, and communications equipment.

It is another object of the invention to provide an electronic shipment planner which is applicable for personal events scheduling.

It is another object of the invention to provide an electronic shipment planner which electronically filters information contained in a data repository using customized electronic user reports to display only a select portion of the information to the user.

It is another object of the invention to provide an electronic shipment planner which promotes time and cost efficiency in the shipment industry.

These and other objects of the present invention are achieved in the preferred embodiments disclosed below by providing an electronic shipment planner adapted for electronically presenting shipment and scheduling information to a user. The shipment and scheduling information includes at least one shipment event date. The shipment planner is linked to a shipment data repository containing shipment and scheduling information. A system interface communicates with the shipment data repository. An interactive shipment data link is electronically associated with the shipment and scheduling information, and cooperates with the system interface as commanded by the user to access and retrieve the associated shipment and scheduling information contained in the shipment data repository. A calendar display interface displays the shipment planner to the user in a calendar format, such that the interactive shipment data link is provided on the shipment event date associated with the shipment and scheduling information.

According to another preferred embodiment of the invention, shipment data input means communicates with the shipment data repository for loading shipment and scheduling information into the shipment data repository.

According to yet another preferred embodiment of the invention, the system interface is a Web browser, such as "Netscape Navigator" or "Microsoft Explorer".

According to yet another preferred embodiment of the invention, the shipment data link is a predetermined portion of the shipment and scheduling information.

5 According to yet another preferred embodiment of the invention, the shipment data link is a shipment reference code.

According to yet another preferred embodiment of the invention, the shipment reference code is selected from the group consisting of a bill of lading number and a purchase order number.

10 According to yet another preferred embodiment of the invention, a plurality of interactive shipment data links are electronically associated with at least one of an inbound shipment, an outbound shipment, and a third party shipment.

15 According to yet another preferred embodiment of the invention, the plurality of interactive shipment data links are color-coded to readily distinguish between inbound, outbound, and third party shipments.

According to yet another preferred embodiment of the invention, a legend is provided for indicating the color-code for each inbound shipment, outbound shipment, and third party shipment.

20 According to yet another preferred embodiment of the invention, a display options data repository contains format parameters for customizing the format of the calendar display interface.

According to yet another preferred embodiment of the invention, a display options

data interface communicates with the display options data repository for setting desired format parameters contained in the display options data repository.

According to yet another preferred embodiment of the invention, an input device selects the interactive shipment data link from the calendar display interface.

5 According to yet another preferred embodiment of the invention, the input device is a computer mouse.

According to yet another preferred embodiment of the invention, a report data repository contains profile parameters for displaying the shipment and scheduling information in a customized user report.

10 According to yet another preferred embodiment of the invention, a report data interface communicating with the report data repository for setting desired profile parameters contained in the report data repository.

15 According to yet another preferred embodiment of the invention, a personal event data repository contains personal event information of the user. The personal event information is associated with a personal event date.

According to yet another preferred embodiment of the invention, a personal event data interface communicates with the personal event data repository for loading personal event information into the personal event data repository.

20 According to yet another preferred embodiment of the invention, an interactive personal event data link is electronically associated with the personal event information, and cooperates with the system interface as commanded by the user to access and retrieve the associated personal event information contained in the personal event data repository.

According to yet another preferred embodiment of the invention, the personal event data link is a predetermined portion of the personal event information

According to yet another preferred embodiment of the invention, the personal event data link is a title of the personal event information.

5 In another embodiment, the invention is an electronic shipment planner adapted for electronically presenting shipment and scheduling information to a user. The shipment and scheduling information includes at least one shipment event date. The shipment planner is linked to a shipment data repository containing shipment and scheduling information.

10 A system interface communicates with the shipment data repository. An interactive shipment data link is electronically associated with the shipment and scheduling information, and cooperates with the system interface as commanded by the user to access and retrieve the associated shipment and scheduling information contained in the shipment data repository. A personal event data repository contains personal event information of the user. The personal event information is associated with a personal event date. An
15 interactive personal event data link is electronically associated with the personal event information of the user, and cooperates with the system interface as commanded by the user to access and retrieve the associated personal event information contained in the personal event data repository. A calendar display interface displays the shipment planner to the user in a calendar format, such that the interactive shipment data link and the interactive personal
20 event data link are provided on their respective shipment and personal event dates associated with the shipment and scheduling information and the personal events information. The shipment data link and the personal event data link are color-coded to

readily distinguish between the associated shipment and scheduling information and the personal events information. A legend indicates the color-code for each of the shipment data and personal event data links.

In yet another embodiment, the invention is a method for electronically presenting shipment and scheduling information to a user. The shipment and scheduling information includes at least one shipment event date. The method includes the step of creating a shipment data repository containing shipment and scheduling information. A system interface is then provided to communicate with the shipment data repository. An interactive shipment data link is then electronically associated with the shipment and scheduling information. The shipment data link cooperates with the system interface as commanded by the user to access and retrieve the associated shipment and scheduling information contained in the shipment data repository. The shipment planner is then displayed to the user in a calendar format, such that the interactive shipment data link is provided on the shipment event date associated with the shipment and scheduling information.

According to another preferred embodiment of the invention, the method includes the step of providing a plurality of interactive shipment data links associated with at least one of an inbound shipment, an outbound shipment, and a third party shipment.

According to yet another preferred embodiment of the invention, the method includes the step of color-coding the plurality of interactive shipment data links to readily distinguish between inbound, outbound, and third party shipments.

According to yet another preferred embodiment of the invention, the method includes the step of providing a legend for indicating the color-code for each inbound shipment,

outbound shipment, and third party shipment.

According to yet another preferred embodiment of the invention, the method includes the step of creating a personal event data repository containing personal event information of the user, the personal event information being associated with a personal event date.

5 According to yet another preferred embodiment of the invention, the method includes the step of electronically associating an interactive personal event data link with the personal event information of the user. The personal event data link cooperates with the system interface as commanded by the user to access and retrieve the associated personal event information contained in the personal event data repository.

10 In yet another embodiment, the invention is a computer readable memory medium, encoded with data representing a computer program, that can be used by a computer system to direct the computer system to execute a method for electronically presenting shipment and scheduling information to a user. The shipment and scheduling information includes at least one shipment event date. The medium includes a system interface
15 communicating with a shipment data repository containing shipment and scheduling information. An interactive shipment data link is electronically associated with the shipment and scheduling information, and cooperates with the system interface as commanded by the user to access and retrieve the associated shipment and scheduling information contained in the shipment data repository. A calendar display interface displays a calendar format,
20 such that the interactive shipment data link is provided on the shipment event date associated with the shipment and scheduling information.

According to another preferred embodiment of the invention, the memory medium

includes a plurality of interactive shipment data links associated with at least one of an inbound shipment, an outbound shipment, and a third party shipment.

According to yet another preferred embodiment of the invention, the memory medium includes a display options data interface communicating with a display options data repository for selecting desired profile parameters contained in the display options data repository.

According to yet another preferred embodiment of the invention, the memory medium includes a report data interface communicating with a report data repository for selecting desired profile parameters contained in the report data repository.

According to another preferred embodiment of the invention, the memory medium includes an interactive personal event data link which is electronically associated with personal event information of the user, and which cooperates with the system interface as commanded by the user to access and retrieve the associated personal event information contained in a personal event data repository.

Brief Description of the Drawings

Some of the objects of the invention have been set forth above. Other objects and advantages of the invention will appear as the description proceeds when taken in conjunction with the following drawings, in which:

Figure 1 is a flow diagram illustrating the overall operation of an electronic shipment planner according to one preferred embodiment of the invention;

Figure 2 is a general schematic diagram showing communication of the client interface with the system Web server;

Figure 3 is a screen shot of the calendar interface in a month display format;

Figure 4 is a screen shot of the calendar interface in a day display format;

Figure 5 is a screen shot of the calendar interface in a horizontal week display format;

Figure 6 is a screen shot of the calendar interface in a vertical week display format;

5 Figure 7 is a flow diagram illustrating the process for customizing the calendar display format;

Figure 8 is a screen shot of the user report data interface for creating customized shipment reports based on parameters selected by the user;

10 Figure 9 is a flow diagram illustrating steps of the process for creating the customized shipment report;

Figures 10 and 11 are flow diagrams illustrating further steps of the process for creating the customized shipment report;

Figure 12 is a flow diagram illustrating the process for adding a user event to the shipment planner;

15 Figure 13 is a screen shot of the user events interface;

Figure 14 is a flow diagram illustrating the “onclick” process for displaying shipment and event information from the calendar interface;

Figure 15 is a screen shot of a pop-up window providing shipment tracing information;

20 Figure 16 is a pop-up window displayed when “mousing over” a shipment reference code;

Figure 17 is a pop-up window displayed when “mousing over” a user events

reference code;

Figure 18 is a flow diagram demonstrating the process for changing the display of the calendar interface; and

Figure 19 is a screen shot of the planner options interface.

5 Description of the Preferred Embodiment and Best Mode

Referring now specifically to the drawings, an electronic shipment planner according to the present invention is illustrated in the flow diagram of Figure 1 and referenced generally at 10. The shipment planner 10 is applicable for presenting shipment and scheduling information and personal events information to a user in a convenient, easy to read, interactive calendar display format. As indicated in Figure 2, users access the shipment planner 10 from a client interface 11 via an Internet service provider 12 and suitable communications equipment 14, such as a modem. The client interface 11 may be any application, such as a PC Web browser, which understands computer markup language, such as HTML and Dynamic-HTML. The shipment planner 10 is made available to the client interface 11 from a system Web server 15 via Internet service provider 16 and standard communications equipment 17. Data is supplied to the shipment planner on or off site through the Internet. According to one embodiment, users access the shipment planner 10 from a workstation including a computer, keyboard, mouse, monitor, and modem connection. The shipment planner 10 provides ready and convenient access to shipment delivery and tracking information from any location in the world, on any day of the week, and at any time of day.

Referring now to the flow diagram of Figure 1, the shipment planner 10 includes four

data repositories 21, 22, 23, and 24, respectively: (1) "display options data"—contains display parameters used to customize how the shipment planner is displayed to the user; (2) "user reports data"—contains report profiles which query the shipment data to create customized user reports; (3) "shipment data"—contains all shipment and scheduling information; (4)

5 "user events data"—contains personal events information.

Display Options

Upon accessing the shipment planner 10 via the client interface 11, preprogrammed default display parameters are retrieved from the display options data repository 21. The display parameters define a calendar interface 30, shown in Figures 3-6, in the form of a

10 convenient, easy-to-read calendar. After the initial display, the user can readily modify the format of the calendar interface 30 by selecting various customization options indicated in the flow diagram of Figure 7. Referring to Figure 7, from the default screen shown in Figure 3, the user chooses to view the calendar interface 30 in a desired screen format 32 including

15 either a "normal" format which displays a page header and footer, or a "full screen" format which omits the page header and footer. In the full screen format, the user can further elect to set the display width based on the screen width or on a preprogrammed default parameter. The user then chooses to view the accessed shipment data and personal events information in either a month, day, or week display format, 33, 34, and 35, respectively. The default setting shown in Figure 3 illustrates a month display format 33. Figure 4 illustrates a day

20 display format 34. The week display 35, shown in Figures 5 and 6, can be viewed in either a horizontal or a vertical format, 36 and 37, respectively.

User Report Data

Referring to Figures 8-11, customized profiles are created using a report data interface 40. The user reports are titled by the user for subsequent retrieval, and are stored in the user reports data repository 22. The user may choose to create a report based on numerous options, including: the shipment delivery status 41 (delivered, undelivered, delayed, delivered with an exception); the payment status 42 (paid, unpaid, overdue); the paying party 43 (collect or prepaid); date restrictions 44 (pickup, due, appointment, delivery); past or future date time frame 45 and 46 (yesterday, tomorrow, last week, next week, last # of days, next # of days, week-to-date, month-to-date, date range); inbound options 47 (origin state, origin zip code, shipper location, shipper state, shipper zip code, shipper serving station); outbound options 48 (destination state, destination zip code, consignee location, consignee state, consignee zip code, consignee serving station); and third party options 49 (paying location, origin state, origin zip code, origin station, destination state, destination zip code, destination station).

As shown in Figure 9, to create a customized report, the user first selects the shipment status 41 for desired shipments to be retrieved in the report. The user chooses between delivered shipments, delayed shipments, undelivered shipments, shipments delivered with exception, or shipments of any status. After this selection, the user then chooses the shipment payment status 42 for shipments which are either paid, unpaid, overdue, or of any payment status. The user then selects the paying party 43 choosing between shipments which are either prepaid by the paying party, or those which require collection from the paying party.

Shipment date restrictions 44 are selected, as indicated in Figure 10. The user first selects the shipment date type—either the pickup date, the delivery date, the due date, or the appointment date. For pickup and delivery date shipments, the user further selects a past date limit 45 including yesterday, last week, a selected past number of days, last week-to-date, last month-to-date, or a specified date range. For due date and appointment date shipments, the user further selects a future date limit 46 including tomorrow, next week, a selected number of days in the future, or a specified future date range.

Referring to Figure 11, after selecting the shipment date restrictions 44, the user selects inbound, outbound, and third party options, 47, 48, and 49. The user starts with freight type options. For the inbound freight option selections 47, the user chooses between select inbound freight, all inbound freight, and no inbound freight. Select inbound freight includes one or more of the origin states, origin zip codes, destination locations, destination states, destination zip codes, and destination serving station. Next, the user makes outbound freight options selections 48. For select outbound freight, the user chooses one or more of the destination states, destination zip codes, origin locations, origin states, origin zip codes, and origin serving station. Finally, the user makes third party freight option selections 49. For select inbound freight, the user chooses one or more of the paying locations, origin states, origin zip codes, origin locations, destination states, destination zip codes, destination locations.

Shipment Data

Shipment data is entered into the electronic shipment data repository 23 which can be updated at any time by authorized field and general office personnel via electronic data

interchange (EDI) or the Internet. Preferably, shipment data is entered into the repository at the time a service center receives a shipper's bill of lading. The customized user reports, described above, operate to electronically filter the shipment data contained in the shipment data repository to provide only the selected information requested by the user.

5 Personal Events

Referring now to the flow diagram of Figure 12, mouse-clicking on the "Add Event" icon 50 displayed in the calendar interface 30 allows the user to add new personal events to the shipment planner 10. From a user events interface 50, shown in Figure 13, the user inputs the title of the event, a description of the event, the day of the event, the starting time, and the ending time. Once this input is completed, the user then elects to clear, delete, save and apply, or cancel the event. Mouse-clicking on the "Clear" icon 51 clears the event data from display and returns the user to the events interface. Mouse-clicking on the "Delete" icon 52 triggers a confirmation query 53 asking the user to confirm the deletion. When confirmed, the event data is deleted and the user is returned to the calendar interface 30. Mouse-clicking on the "Save & Apply" icon 54 saves the inputted event data in the user events data repository 24, and transfers the user back to the calendar interface 30. Mouse-clicking on the "Cancel" icon 55 transfers the user directly to the calendar interface 30 without saving the new events data. Previously entered events data is stored in the user events data repository 24.

20 Using the Shipment Planner 10

The user navigates the shipment planner 10 from his workstation using the attached mouse and a convenient point-and-click, menu-driven software. Upon accessing the

shipment planner 10, the selected customized user report electronically filters the information contained in the shipment data repository 23, as described above, to display only the desired shipment data in the calendar interface 30. From the calendar interface 30, the user can choose to view shipment and scheduling information or personal events data by mouse-clicking directly on a shipment data link 61 or a personal events link 62 appearing on the screen (See Figures 3-6). The links 61 and 62 are displayed in the calendar interface 30 on certain days of the month corresponding to their respective event dates. In one embodiment, the shipment data link 61 is a shipment reference code, such as an internal system reference number, a bill of lading number, or a purchase order number, which is associated with certain shipment data and scheduling information contained in the shipment data repository 23. When a shipment reference code is selected, the client interface 11 accesses the associated shipment and scheduling information and downloads this information for display to the user. The personal events data link 62 is preferably a one or two word event title. When an event title is selected, the client interface 11 accesses the associated personal events information contained in the user events data repository 24 and downloads this information for display to the user.

For convenient viewing, the shipment reference codes and event titles are preferably color-coded, as indicated in the legend 63, to readily distinguish between inbound shipments, outbound shipments, third party shipments, and personal events. For example, inbound shipments may be designated by the color blue, outbound shipments designated by red, third party shipments designated by green, and personal events designed by orange.

Referring to Figures 14 and 15, using an "onclick process" 70 the user mouse-clicks

directly on either a shipment data link 61 or personal events data link 62 in the calendar interface 30, as previously described. Upon selecting a shipment data link 61, the client interface 11 downloads the associated shipment data from the shipment data repository 23 and a pop-up trace window 80, shown in Figure 15, is displayed to the user. The trace window 80 provides detailed information regarding the selected shipment, including its present location, shipment origin, destination, bill of lading number, purchase order number, number of pieces, shipment weight, and the e-mail addresses of the origin and destination service centers. If a personal events data link 62 is selected, the client interface 11 downloads the associated event data from the user events data repository 24. The selected event information is then displayed, as shown in Figure 13. This information indicates the event title, a description of the event, the day of the event, the event starting time, and the event ending time.

Referring again to Figures 1 and 3, from the calendar interface 30, the user can further elect to view shipment data and events information for preceding and succeeding calendar units by mouse-clicking on the "Previous" and "Next" icons, 81 and 82, respectively. The "Refresh" icon 83 reloads the calendar interface. By "mousing-over" 84 (without clicking) shipment reference code and event titles displayed in the calendar interface 30, respective pop-up windows 85 and 86 provide a brief summary of the shipment status, as shown in Figure 16, and the personal event, as shown in Figure 17. The shipment summary includes an internal system reference number, a purchase order number, a concise status statement, and the name of the person signing the delivery. The event summary includes the title of the event, a brief description, and the duration of the event.

Changing the Calendar Interface 30

Referring to Figures 18 and 19, from the calendar interface 30, the user can select the "Options" icon 90 to change the default shipment reference codes which appear on the calendar interface 30 upon accessing the shipment planner 10, and the actual dates upon which the shipment reference codes are posted. In order to change the default settings, the client interface 11 accesses both the display options data repository 21 to display the current options selected, and the user reports data repository 22 to display the available shipment reports.

A planner options interface 100, shown in Figure 19, allows the user to customize the appearance of the calendar interface 30 by first selecting which shipment report to access. Preferably, a drop-down window displays all previously entered reports stored in the user reports data repository for convenient selection by the user. After selecting the desired report, the user then chooses whether to display one or more of inbound, outbound, or third party shipments contained in the report, and whether the shipments will be displayed to the calendar interface on either the due or delivery date, or the shipment date. The shipment reference code to be displayed is then selected from either a purchase order number, a bill of lading number, or an internal system reference number. The user then selects a default display by month, day, or week with a further option to display the calendar interface without header and footer, or to expand the calendar interface to screen size based on the user's monitor. Finally, the user elects to start the display with either the current date or the date of the first active shipment. For the week display, the user can further elect a horizontal format (See Figure 5) or a vertical format (See Figure 6). Once the

